



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM07031C Perform metal spinning lathe operations (complex)**

**Release: 1**

## MEM07031C Perform metal spinning lathe operations (complex)

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers performing complex metal spinning operations (excluding CNC), using a variety of advanced processes, spinning tools and accessories.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit applies to complex spinning operations which require preparation of form chucks, oval spinning, thread spinning, or jobs requiring higher precision or quality using mainly brass and brass alloys. This unit also requires the use of a wide range of spinning accessories and processes, including the use of annealing.</p> <p>Where there is a requirement to join spun materials or products in addition to, or instead of, (the spinning operation of) swaging, the following units may also be required: Unit MEM05003B (Perform soft soldering), Unit MEM05006B (Perform brazing and/or silver soldering), or Unit MEM05004C (Perform routine oxy acetylene welding [fuel gas welding]), or Unit MEM05012C (Perform routine manual metal arc welding)</p> <p><b>Band: A</b></p> <p><b>Unit Weight: 4</b></p>
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### Licensing/Regulatory Information

Not Applicable

## Pre-Requisites

Prerequisite units		
<b>Path 1</b>	MEM07030C	Perform metal spinning lathe operations (basic)
	MEM07032B	Use workshop machines for basic operations
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Observe safety precautions	1.1. Correct safety procedures are observed and protective clothing and safety glasses are worn.
2. Determine job requirements	2.1. Drawings are interpreted and sequence of operation is determined. 2.2. Tools are selected to produce components to specifications. 2.3. Disc size is determined according to relevant procedures. 2.4. Disc is cut to the correct size and tolerance.
3. Prepare form chucks for spinning	3.1. Metal turning lathe is set up for machining form chucks according to standard operating procedures and standards. 3.2. Form chuck is prepared for general spinning as per drawings and specifications. 3.3. Form chuck is prepared for seaming/swaging joints as per drawings and specifications.
4. Perform complex spinning operations	4.1. Spinning speeds are calculated for various metals and metal thicknesses using appropriate mathematical techniques and reference materials. 4.2. Correct back centre and form chucks are selected and mounted according to procedures and specifications. 4.3. Prepared disc is mounted for forming. 4.4. A full range of spinning accessories is used including: back centre, holding and sectional chucks, tee-rest, compound and additional slides, recessed and cranked followers, rollers and knurling wheels. 4.5. Spinning, beading, recessing, oval spinning, screw forming, (thread spinning) seaming, swaging, trimming finishing, annealing and pickling operations are performed to specification.
5. Check components for conformance to specifications	5.1. Components are checked for conformance to specifications using appropriate techniques, tools and equipment.
6. Remove and store components	6.1. Components are removed from the spinning lathe without marking or any deformation. 6.2. Components are correctly stored and packaged to avoid oxidation and damage.

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

Look for evidence that confirms skills in:

- reading and interpreting information on written job instructions, specifications and standard operating procedures. May include drawings
- entering information onto proformas and standard workplace forms
- following oral instruction
- using all types of metal spinning tools and accessories
- calculating disc size and lathe speed including angles and radius
- manual handling related to spinning products
- coordinating use of multi-slides and tools, feeds and speeds
- producing complex spinning shapes using a variety of processes and techniques

#### Required knowledge

Look for evidence that confirms knowledge of:

- complex spinning operations, processes and techniques
- requirements for maintaining tools and manufacturing form chucks
- types of damage and defects e.g. tool marks, cracking, stress marks, thinning and incorrect finish
- function and operation of accessories
- methods used for each process
- methods for stacking and protecting finished product
- use and application of personal protective equipment
- safe work practices and procedures
- hazards and control measures associated with metal spinning lathe operations (complex)

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to perform complex spinning operations using a range of metal spinning lathes, accessories and measuring equipment. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p>
<p><b>Context of and specific resources for assessment</b></p>	<p>This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing complex metal spinning lathe operations or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p><b>Method of assessment</b></p>	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning should not require language, literacy and numeracy skills beyond those required in this unit. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

**EVIDENCE GUIDE**

<b>Guidance information for assessment</b>	
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**Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<b>Tools</b>	Spinning tools, planishing tools, backstick, trimming, beading tools, back centre, holding and sectional chucks, tee-rest, compound and additional slides, recessed and cranked followers, rollers and knurling wheels etc.
<b>Complex spinning operations</b>	Spinning, beading, recessing, oval spinning, screw forming, (thread spinning) seaming, swaging, trimming finishing, annealing, pickling, combined angles and multi-radii
<b>Metals</b>	Steels, aluminium, monel, copper, brass, brass alloys, zinc, pewter, silver, gold, tin, etc., of varying thicknesses

**Unit Sector(s)**

<b>Unit sector</b>	
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**Co-requisite units**

<b>Co-requisite units</b>	
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<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	Machine and process operations
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